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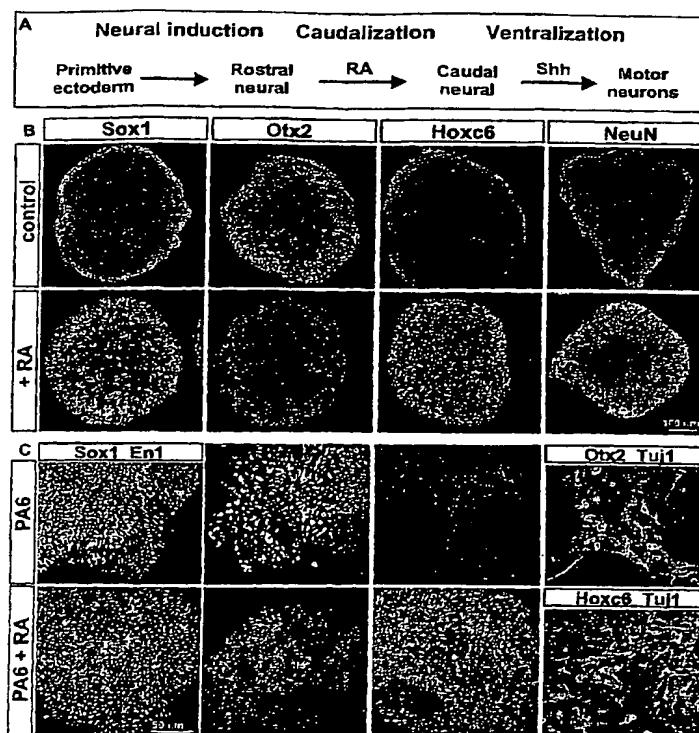
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(54) Title: SYSTEMS AND METHODS FOR SCREENING FOR MODULATORS OF NEURAL DIFFERENTIATION



(57) Abstract: The present invention provides in vitro systems for use in identifying modulators of neural differentiation. Also provided are modulators identified by these systems. The present invention further provides methods for identifying a modulator of neural differentiation, a modulator of a Wnt signalling pathway, a modulator of Wnt-dependent neural differentiation, a modulator of a BMP signalling pathway, a modulator of BMP-dependent neural differentiation, a modulator of a Hh signalling pathway, and a modulator of Hh-dependent neural differentiation. Also provided are modulators identified by these methods.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/05877

A. CLASSIFICATION OF SUBJECT MATTER
IPC: C12N 5/02(2006.01),5/06(2006.01),5/08(2006.01)

USPC: 435/377,325,364,365
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 435/377,325,364,365

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Medline

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CARPENTER, M.K. et al. Enrichment of neurons and neural precursors from human embryonic stem cells. Exp Neurol. December 2001 Vol. 172, No. 2, pages 383-397. Whole document, especially page 386, left column, first paragraph.	1, 3, 4, 10, 11, 14, 16,, 18-24, 26, 28, 30, 32- 36, 38, 40-42
X	US 2002/0151056 A1 (SASAI et al.) 17 October 2002 (17.10.2002), [0023], claims 13,14, 56-59 [0105], [0176-0198]	1-9, 11, 14, 16-23, 28, 30-33, 36, 38, 40-42

Further documents are listed in the continuation of Box C.

See patent family annex.

• Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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INTERNATIONAL SEARCH REPORT

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PCT/US05/05877

Continuation of Box II Reason 2:

Claim 13, 27, 29, 37, 39 are objected to as lacking clarity under PCT Rule 66.2(a)(v) because the claim are not fully supported by the description. The application, as originally filed, did not describe: Any modulator identified by any of the claimed methods.

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-12, 14, 16-26, 28, 30-36, 38 and 40-42, drawn to an in vitro system and methods for identifying a modulator of neural differentiation.

Group II, claim(s) 43-52, and claim 67, in part, drawn to methods for identifying a modulator of an FGF signaling pathway.

Group III, claim(s) 53-66, and claim 67, in part, drawn to methods for identifying a modulator of a retinoid signaling pathway.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I recites the special technical feature, neural differentiation, which is not required by the methods of Groups II or III.

Group II recites the special technical feature, modulator of an FGF signaling pathway, which is not required by the methods of Groups I or III.

Group III recites the special technical feature, modulator of a retinoid signaling pathway, which is not required by the methods of Groups I or II.